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10/762,509	01/23/2004	Takashi Chuman	Q79539	5235

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EXAMINER	
WONG, ALLEN C	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,509	CHUMAN ET AL.	
	Examiner	Art Unit	
	Allen Wong	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/23/04,8/2/04,9/13/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 1/23/04, 8/2/04 and 9/13/07 is considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoguchi (5,945,965) in view of Taniguchi (6,094,216).

Regarding claim 1, Inoguchi discloses an apparatus for displaying a three-dimensional image of an object to be displayed (col.7, ln.57-59), through a superimposing of a plurality of images of said object (col.7, ln.59-63, plural images are synchronized and superimposed), which are placed so as to be apart from each other on a line of sight of an observer (col.9, ln.14-37, Inoguchi discloses that in fig.1, there are parameters that must be satisfied from the line of sight of the observer's eyes ER and EL, as disclosed in col.7, ln.63 to col.8, ln.7), comprising:

a first display unit having a first screen (col.8, ln.40-44, element 1 of fig.1 is a first first display unit having a first screen); and

a second display unit disposed so as to face said first display unit, said second display unit having a second screen, which is light-transmissible (col.8, ln.45-50, element 2 of fig.1 is a second display unit having a screen that is light transmissible).

Inoguchi does not specifically disclose an optical transmission unit disposed between said first display unit and said second display unit, to transmit light, which is emitted from portions of said first screen, to respective portions of said second screen. However, Taniguchi teaches the optical transmission unit disposed between the first display unit and the second display unit, to transmit light, which is emitted from portions of the first screen, to respective portions of the second screen (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light emitted from first screen of element 1 to respective portions of the second screen of element 2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Regarding claim 7, Inoguchi does not specifically disclose wherein: said optical transmission unit is provided so as to correspond to respective pixels of said first display unit and said second display unit. However, Taniguchi teaches wherein the optical transmission unit is provided so as to correspond to respective pixels of the first

display unit and the second display unit (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light emitted from first screen of element 1 to respective portions of the second screen of element 2, in that the variable spacer 33 is used for focusing the pixel data of the first and second display units, as disclosed in col.18, ln.16-28). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Regarding claim 8, Inoguchi does not specifically disclose wherein: said first display unit has a first pixel block comprising a plurality of pixels and said second display unit has a second pixel block comprising a plurality of pixels, said first pixel block corresponding to said second pixel block; and said optical transmission unit is provided so as to correspond to each of said first pixel block and said second pixel block. However, Taniguchi teaches wherein: the first display unit has a first pixel block comprising a plurality of pixels and the second display unit has a second pixel block comprising a plurality of pixels (col.8, ln.40-44, element 1 of fig.1 is a first display unit having pixel block data passing through, and in col.8, ln.45-50, element 2 of fig.1 is a second display unit having pixel block data passing through), the first pixel block corresponding to the second pixel block (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light

emitted from first screen of element 1 to respective portions of the second screen of element 2, in that the variable spacer 33 is used for focusing the pixel data of the first and second display units for correspondence of the pixel data from the first display to the second display, as disclosed in col.18, ln.16-28); and the optical transmission unit is provided so as to correspond to each of said first pixel block and said second pixel block (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light emitted from first screen of element 1 to respective portions of the second screen of element 2, in that the variable spacer 33 is used for focusing the pixel data of the first and second display units for correspondence of the pixel data from the first display to the second display, as disclosed in col.18, ln.16-28). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Claims 2-6 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoguchi (5,945,965) and Taniguchi (6,094,216) in view of Hasegawa (6,831,627).

Regarding claim 2, Inoguchi and Taniguchi do not specifically disclose wherein: said first display unit comprises: a first substrate; and a first luminescent layer formed on said first substrate, said first luminescent layer emitting light so as to provide said first screen; and said second display unit comprises: a second substrate having a light

transmission property; and a second luminescent layer formed on said second substrate, said second luminescent layer emitting light so as to provide said second screen. However, Hasegawa teaches wherein: the first display unit (col.6, ln.64-67, fig.7, element 20) comprises: a first substrate (col.7, ln.15-20, fig.7, element 1 is the substrate); and the first luminescent layer formed on the first substrate (col.6, ln.60-63), said first luminescent layer emitting light so as to provide said first screen (col.7, ln.5-20, fig.7, element 13 can be considered the first luminescent layer for emitting light to the first screen); and said second display unit (col.6, ln.62-63, fig.7, element 10) comprises: a second substrate having a light transmission property (col.6, ln.60-63, fig.7, element 4).

Hasegawa does not specifically disclose and a second luminescent layer formed on the second substrate, the second luminescent layer emitting light so as to provide the second screen. However, since the first display unit can have a first luminescent layer that can emit light so as to provide the first screen, it would have been obvious to one of ordinary skill in the art to apply the second display unit for having a second luminescent layer formed on the second substrate, the second luminescent layer emitting light so as to provide the second screen so as to generate the electro-luminescence on the second display unit to produce high quality image data. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Regarding claim 3, Inoguchi does not specifically disclose wherein: said optical transmission unit is disposed between said first display unit and an opposite surface of said second substrate to said second luminescent layer. However, Taniguchi teaches the transmission unit is disposed between the first display unit and an opposite surface of the second display unit (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light emitted from first screen of element 1 to respective portions of the second screen of element 2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Hasegawa does not specifically disclose and a second luminescent layer formed on the second substrate, the second luminescent layer emitting light so as to provide the second screen. However, since the first display unit can have a first luminescent layer that can emit light so as to provide the first screen, it would have been obvious to one of ordinary skill in the art to apply the second display unit for having a second luminescent layer formed on the second substrate, the second luminescent layer emitting light so as to provide the second screen so as to generate the electro-luminescence on the second display unit to produce high quality image data. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Regarding claim 4, Inoguchi does not specifically disclose wherein: said first substrate has a light transmission property; and said optical transmission unit is disposed between said second display unit and an opposite surface of said first substrate to said first luminescent layer. However, Taniguchi teaches the optical transmission unit disposed between the first display unit and the second display unit, to transmit light, which is emitted from portions of the first screen, to respective portions of the second screen (col.18, ln.29-46, fig.10, element 33 is the optical transmission means that is placed between the first display unit 1 and the spatial light modulator 2, acting as a second display, for directing and transmitting light emitted from first screen of element 1 to respective portions of the second screen of element 2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Inoguchi and Taniguchi do not specifically disclose the first substrate has a light transmission property; and the optical transmission unit is disposed between the second display unit and an opposite surface of the first substrate to the first luminescent layer. However, Hasegawa discloses the first substrate has a light transmission property (col.7, ln.15-20, fig.7, element 1 is the substrate); and the second display unit and an opposite surface of the first substrate to the first luminescent layer (col.6, ln.62-63, fig.7, element 10 is the second display unit; col.7, ln.5-20, fig.7, element 13 can be considered the first luminescent layer for emitting light to the first screen). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of

Inoguchi, Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Regarding claim 5, Inoguchi does not specifically disclose wherein: said optical transmission unit has a same refractive index as that of said first substrate. However, Taniguchi teaches using the same refractive index for the associated elements of the display setup units (col.35, ln.55-59 and col.36, ln.10-14). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Regarding claim 6, Inoguchi does not specifically disclose wherein: said optical transmission unit has a same refractive index as that of said second substrate. However, Taniguchi teaches using the same refractive index for the associated elements of the display setup units (col.35, ln.55-59 and col.36, ln.10-14). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Regarding claim 14, Inoguchi and Taniguchi do not specifically disclose wherein: at least one of said first substrate and said second substrate contains at least one of glass and plastic. However, Hasegawa discloses that at least one of the first substrate and the second substrate contains at least one of glass and plastic (col.7, ln.15-20, fig.7, elements 1 and 4 are substrates from glass). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi,

Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Regarding claim 15, Inoguchi and Taniguchi do not specifically disclose wherein: said second display unit comprises an organic electroluminescence display device. However, Hasegawa teaches the use of an organic electroluminescence display device (col.2, ln.49-51 and col.6, ln.31-32 and 36-37, Hasegawa discloses the organic EL panel 20). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Regarding claim 16, Inoguchi and Taniguchi do not specifically disclose wherein: said second substrate comprises a polymer film. However, Hasegawa teaches the use of polymer film on the substrate (col.7, ln.15-20, Hasegawa discloses ITO or transparent indium tin oxide is formed near the surface of the substrate 1 as illustrated on fig.7). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Hasegawa, as a whole, for displaying high quality, high definition images (Hasegawa col.4, ln.38-43).

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoguchi (5,945,965) and Taniguchi (6,094,216) in view of Sonehara (5,053,765).

Regarding claim 9, Inoguchi and Taniguchi do not specifically disclose wherein: said optical transmission unit comprises optical fibers. However, Sonehara teaches the use of optical fiber bundles for guiding light data to the display (col.11, ln.34-44).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Sonehara, as a whole, for minimizing unevenness of image data displayed on screen for viewing so as to provide clear high quality images (Sonehara col.1, ln.44-47).

Regarding claim 10, Inoguchi and Taniguchi do not specifically disclose wherein: each of said optical fibers has a core, said core having a smaller size than each of the pixels of said first display unit. However, Sonehara teaches the use of optical fiber bundles (col.11, ln.34-44, Sonehara discloses that in fig.17, that each optical fiber has a center or core, and that the core is smaller than the pixel of the display unit). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Sonehara, as a whole, for minimizing unevenness of image data displayed on screen for viewing so as to provide clear high quality images (Sonehara col.1, ln.44-47).

Regarding claim 11, Inoguchi and Taniguchi do not specifically disclose wherein: each of the pixels of said first display unit has a same shape as said core. However, Sonehara teaches the use of optical fiber bundles (col.11, ln.34-44, Sonehara discloses that in fig.17, that each optical fiber has a center or core, and that the core is smaller than the pixel of the display unit; col.3, ln.64 to col.4, ln.11; Sonehara discloses that in fig.1, the light guide members or optical fibers 106 are attached to the LCD 104). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Sonehara, as a whole, for minimizing

unevenness of image data displayed on screen for viewing so as to provide clear high quality images (Sonehara col.1, ln.44-47).

Regarding claim 12, Inoguchi and Tanuguchi do not specifically disclose wherein: said optical fibers are connected to at least one of said first display unit and said second display unit by an optical adhesive having a light transmission property. However, Sonehara teaches the use of optical fiber bundles (col.3, ln.64 to col.4, ln.11; Sonehara discloses that in fig.1, the light guide members or optical fibers 106 are attached to the LCD 104 with some kind of transmitting adhesion material). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Sonehara, as a whole, for providing the optical adhesive having a light transmission property so as to minimize unevenness of image data displayed on screen for viewing so as to provide clear high quality images (Sonehara col.1, ln.44-47).

Regarding claim 13, Inoguchi does not specifically disclose wherein: said optical adhesive has a same refractive index as that of said core. However, Taniguchi teaches using the same refractive index for the associated elements of the display setup units (col.35, ln.55-59 and col.36, ln.10-14). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi and Taniguchi, as a whole, for display high resolution, high quality images while minimizing crosstalk effects (Taniguchi col.3, ln.8-16).

Inoguchi and Tanuguchi do not specifically disclose the use of the "core". However, Sonehara teaches the use of optical fiber bundles (col.11, ln.34-44,

Sonehara discloses that in fig.17, that each optical fiber has a center or core, and that the core is smaller than the pixel of the display unit). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Inoguchi, Taniguchi and Sonehara, as a whole, for minimizing unevenness of image data displayed on screen for viewing so as to provide clear high quality images (Sonehara col.1, ln.44-47).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allen Wong
Primary Examiner
Art Unit 2621

AW
1/22/08